CSCI 361: Reading Assignment # 15 **Your Name:** Abel Mestre

Due: Thursday, Nov 21, in class

Assigned reading for this lecture:

- Look over the survey paper topics suggested in class: see google doc linked on the lecture slides

Questions:

1. Will you be working with a partner for the survey paper? If so, who are you planning to work with?

No.

2. What topic have you chosen for investigating in more detail? Give a one paragraph summary of your plan.

⇒ Currently, there are a couple of topics that I'm interested in. Interactive proofs, zero knowledge proofs & recursion theorem (from our textbook) are some of them. I would like to learn more about problems / statements we couldn't prove statically. What do we gain from introducing this idea of interaction?

CSCI 361: Reading Assignment # 15

Your Name: Ahmed

Due: Thursday, Nov 21, in class

Assigned reading for this lecture:

- Look over the survey paper topics suggested in class: see google doc linked on the lecture slides

Questions:

1. Will you be working with a partner for the survey paper? If so, who are you planning to work with?

Have not found a partner yet, but if interests match, am open to one.

2. What topic have you chosen for investigating in more detail? Give a one paragraph summary of your plan.

Russel Impagliazzo's 5 Worlds.

- will read and distill the "A personal view of Average case complexity" paper and the AT blog post.
- will attempt to fit it in the context of the course
- will seek to apply it to some interesting problem.

CSCI 361: Reading Assignment # 15

Your Name: Noah Lape

Due: Thursday, Nov 21, in class

Assigned reading for this lecture:

- Look over the survey paper topics suggested in class: see google doc linked on the lecture slides

Questions:

1. Will you be working with a partner for the survey paper? If so, who are you planning to work with?

   I will be working on my own

2. What topic have you chosen for investigating in more detail? Give a one paragraph summary of your plan.

   I will be investigating string compression. My plan is to do enough reading to familiarize the idea of string compression. Culminating in a proof that lossless compression in general is not possible. I would like to do some additional research on additional topics of Kolmogorov complexity. And using its language to state other impossibility results. I would also like to connect it to current string compression ideal in algorithms.

CSCI 361: Reading Assignment # 15

Your Name: Kunal Pal

Due: Thursday, Nov 21, in class

Assigned reading for this lecture:

- Look over the survey paper topics suggested in class: see google doc linked on the lecture slides

Questions:

1. **Will you be working with a partner for the survey paper? If so, who are you planning to work with?** No, I plan on working alone for the survey paper.

2. **What topic have you chosen for investigating in more detail? Give a one paragraph summary of your plan.** I would like to investigate Zero-Knowledge Proofs more for the survey paper. I have taken a Cryptography class here, and knowing that these are proofs that would be applicable to that seems so cool. I would want to see and write about how they are written, similarities between these proofs and others, if there are general patterns or ways certain examples look. I would then want to look at examples of these proofs and the types of questions that would incorporate them, and I would hope to come up with my own in this paper, as well.

CSCI 361: Reading Assignment # 15 **Your Name:** Juan Mendez

Due: Thursday, Nov 21, in class

Assigned reading for this lecture:

- Look over the survey paper topics suggested in class: see google doc linked on the lecture slides

Questions:

1. Will you be working with a partner for the survey paper? If so, who are you planning to work with?

I will be working by myself.

2. What topic have you chosen for investigating in more detail? Give a one paragraph summary of your plan.

I have chosen to investigate quantum computation. I will likely rely on YouTube videos, as well as chapter readings to learn the material.

CSCI 361: Reading Assignment # 15

Your Name: Prairie

Due: Thursday, Nov 21, in class

Assigned reading for this lecture:

- Look over the survey paper topics suggested in class: see google doc linked on the lecture slides

Questions:

1. Will you be working with a partner for the survey paper? If so, who are you planning to work with?

   Nope

2. What topic have you chosen for investigating in more detail? Give a one paragraph summary of your plan.

   Quantum computing

   Plan: read Barak ch. 23 & Arora-Barak ch. 10, supplementing with other readings as necessary.

CSCI 361: Reading Assignment # 15

Your Name: Lola Kovalski + Max Litvak

Due: Thursday, Nov 21, in class

Assigned reading for this lecture:

- Look over the survey paper topics suggested in class: see google doc linked on the lecture slides

Questions:

1. Will you be working with a partner for the survey paper? If so, who are you planning to work with?

   Max Litvak

2. What topic have you chosen for investigating in more detail? Give a one paragraph summary of your plan.

We are choosing to explore Impagliazzo's Five Worlds, ~~& the implications of~~ these worlds. Our investigation will focus on understanding the implications of these worlds, & their relevance to modern computational theory.* ~~Perhaps~~ we may also consider looking at it through the lens of AI but that is subject to change.

As of now our plan is to:

1. Read paper 2x before Monday
2. Write 1 page background draft by next Tuesday
3. Go discuss in office hours as needed

* i.e. cryptography & more generally what happens if P=NP

Jarin Sutton

1. I would like to do the survey paper on quantum e-computing.

I will be working alone.

2. I would like to start with introducing the basics of quantum mechanics (double slit, superposition, ..., etc) Then exploring the pros and cons of a quantum computer vs. classical. Quantum computers can benefit from an exponential speed up by leveraging principles like quantum entanglement and superposition of quantum states (combinations of qubits.) Quantum computers have analagous logic gates to classical computers but quantum logic gates are more complex, encoding an exponential amount of info for the same n bits.